Department of Energy
Washington, DC 20545

Site: St. Louis Airport
ID # MOD985706765
Break: 1.3
Other: DOE

30285378
Superfund

JUN 17 1988

Mr. John Chen
Superfund Branch
U.S. Environmental Protection
Agency, Region VII
726 Minnesota Avenue
Kansas City, Kansas 66101

Dear Mr. Chen:

The purpose of this letter is to provide the Department of Energy's (DOE) position and transmit the laboratory results (Enclosure 1) and a summary table of all data collected to date (Enclosure 2), concerning the analysis of both liquid and soil samples obtained during the limited survey of the St. Louis Airport property performed by DOE on May 19 and 20, 1988.

It should be noted that the minimum detectable activities (MDA's) associated with the radium-228 analysis performed on liquid sample numbers 134SV4014, 134SV4015, and 134SV4016 are larger than concentrations that might be expected based on thorium concentrations in the sample. These high MDA's resulted from the laboratory experiencing difficulty in digesting the samples into solution which was only successful when small aliquots of these liquids were processed. Since minimum detectable activities are affected by sample size, counting times, and the efficiency of the detectors used, the analyses for radium-228 resulted in high MDA's.

In attempt to better identify the radium-228 concentrations, DOE is presently in the process of re-analyzing samples 134SV4014 and 134SV4015 by wet chemistry in an attempt to lower the MDA's and acquire a more definitive concentration level. All available liquid (410 milliliters) of sample number 134SV4016 was obtained from the buried drum on the airport property and used during the first set of analysis. Thus, re-analysis of this sample is not possible.

In addition to the analysis described above, DOE is also attempting to perform gamma spectroscopy on sample numbers 134SV4014 and 134SV4015 to determine if gamma-emitting daughters of radium-228 are present. Based on the activity associated with the daughters, the concentration of radium-228 will be calculated. Results of these analysis are due on June 21, 1988, and will be provided to EPA as soon as possible.

Based upon review of the data collected by DOE to date, it appears that only the drummed liquids contain above background radioactivity. Concentrations of radionuclides in soil was approximately background in all samples. While elevated levels (relative to background concentrations) were observed for uranium and thorium in drummed liquid, these values are

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low in comparison with established DOE guidelines for release of water to uncontrolled areas (Doe Order 5480.1A). These criteria may not be directly applicable to the drummed liquid at the Midcoast site; however, they provide a very conservative comparison. Concentrations of radionuclides in these residues are also below concentrations the Nuclear Regulatory Commission permits its licensees to discharge into a sanitary sewer system (10 CFR 20, January 1987). Given the low concentrations of radionuclides in the drums, it is not appropriate to consider this liquid a radiologically and chemically mixed waste. The only significant hazard in this material appears to be associated with the chemicals.

Based on chemical analyses data supplied by Midcoast Aviation, Inc. and field observations using instrumentation (Ermet), and other information reviewed by DOE, it is DOE's belief that the chemical constituents are not associated with the Manhattan Engineer District/Atomic Energy Commission (MED/AEC) activities. In addition, natural thorium ore was not processed at the St. Louis Downtown Site. Thus, we would not expect to find thorium-232 concentrations in the levels indicated by the analyses of the drummed material. These concentrations are not indicative of the MED/AEC St. Louis residues.

If you have any questions, please contact Andrew Avel at our Oak Ridge Operations Office (FTS 626-0844).

Sincerely,

James J. Fiore, Director
Division of Facility and Site
Decommissioning Projects
Office of Nuclear Energy

2 Enclosures

cc:
Bruce Mallett, NRC, Chicago
Fred Brunner, MODNR

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ENCLOSURE 1

ALBUQUERQUE LABORATORY

D-0243

REPORT OF ANALYSIS

CUSTOMER: Bechtel National, Inc. - SLAPSS
ATTENTION: Mike McDougall
ADDRESS: P.O. Box 350
CITY: Oak Ridge, TN 37831-0350
W.O. NO.: E-8624

G-ALPHA/ISO-RA-TH-U IN WATER — TYPE OF ANALYSIS

22-841 — CUSTOMER ORDER NUMBER

SAMPLES RECEIVED 05/20/88

Customer Identification	Date Collected	Type of Analysis	TOTAL VOL.		ACTIVITY	2 SIGMA ERROR	UNITS
34SV4016 AITH CONST SITE	05/19/88	G-ALPHA	410		69.0	24.0	pCi/l
		RA 226	410	<	4.0		pCi/l
		RA 228	410	<	160.0		pCi/l
		TH 228	410		51.0	10.0	pCi/l
		TH 230	410		41.0	9.0	pCi/l
		TH 232	410		51.0	10.0	pCi/l
		U 234	410		68.0	18.0	pCi/l
		U 235	410		6.0	5.0	pCi/l
		U 238	410		61.0	16.0	pCi/l
34SV4014 MIDCOAST AVIATION	05/19/88	G-ALPHA	3220		130.0	40.0	pCi/l
		RA 226	3220	<	2.0		pCi/l
		RA 228	3220	<	80.0		pCi/l
		TH 228	3220		17.0	8.0	pCi/l
		TH 230	3220		9.0	8.0	pCi/l
		TH 232	3220		17.0	8.0	pCi/l
		U 234	3220		11.0	4.0	pCi/l
		U 235	3220	<	0.7		pCi/l
		U 238	3220		13.0	4.0	pCi/l
34SV4015 MIDCOAST AVIATION	05/19/88	G-ALPHA	2920		19.0	10.0	pCi/l
		RA 226	2920	<	2.0		pCi/l
		RA 228	2920	<	64.0		pCi/l
		TH 228	2920	<	7.0		pCi/l
		TH 230	2920	<	7.0		pCi/l
		TH 232	2920	<	7.0		pCi/l
		U 234	2920	<	2.0		pCi/l
		U 235	2920	<	0.6		pCi/l
		U 238	2920	<	3.0		pCi/l

☐ REPORTED VIA TELEPHONE

TMA Eberline
Thermo Analytical Inc.
7021 PAN AMERICAN FREEWAY, N.E.
ALBUQUERQUE, NEW MEXICO 87109
PHONE (505) 345-3461

APPROVED BY Kathy Burnham for Rob Melgard — DATE 06-08-1988

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ALBUQUERQUE LABORATORY

CUSTOMER: Bechtel National Inc. - SLAPSS
ATTENTION: Mike McDougall
ADDRESS: P.O. Box 350
CITY: Oak Ridge, TN 37831-0350
W.O. NO.: E-8626

D-02431

REPORT OF ANALYSIS

G-ALPHA/ISO-TH/RA/U IN WATER — TYPE OF ANALYSIS

22-841 — CUSTOMER ORDER NUMBER

SAMPLES RECEIVED 05/21/88

Customer Identification	Date Collected	Type of Analysis	TOTAL VOL.		ACTIVITY	2 SIGMA / ERROR	UNITS
STANDING WATER IN BTM OF DRUM/SV4018	05/20/88	G-ALPHA	3690		4.0	2.0	pCi/l
		TH 228	3690	<	0.2		pCi/l
		TH 230	3690	<	0.2		pCi/l
		TH 232	3690	<	0.2		pCi/l
		RA 226	3690		0.4	0.1	pCi/l
		RA 228	3690	<	4.0		pCi/l
		U 234	3690		1.5	0.3	pCi/l
		U 235	3690	<	0.1		pCi/l
		U 238	3690		1.5	0.3	pCi/l
WATER FROM DITCH W OF DRUM/SV4019	05/20/88	G-ALPHA	4070		24.0	4.0	pCi/l
		TH 228	4070	<	0.1		pCi/l
		TH 230	4070	<	0.3		pCi/l
		TH 232	4070	<	0.1		pCi/l
		RA 226	4070		0.4	0.1	pCi/l
		RA 228	4070	<	4.0		pCi/l
		U 234	4070		0.6	0.2	pCi/l
		U 235	4070	<	0.1		pCi/l
		U 238	4070		0.3	0.1	pCi/l

☐ REPORTED VIA TELEPHONE

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PHONE (505) 345-3461

APPROVED BY Kathy Burnham PWP for Rob McGaud DATE 06-08-1988

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ALBUQUERQUE LABORATORY

CUSTOMER: Bechtel National, Inc. - SLAPSS
ATTENTION: Mike McDougall
ADDRESS: P.O. Box 350
CITY: Oak Ridge, TN 37831-0350
W.O. NO.: E-8623

B-02415

REPORT OF ANALYSIS

GAMMA/TH-230 IN SOIL
TYPE OF ANALYSIS

22-841
CUSTOMER ORDER NUMBER

SAMPLES RECEIVED 05/20/88

Customer Identification	DEPTHS	Date Collected	Type of Analysis	WET/DRY	ACTIVITY pCi/g		2 SIGMA ERROR
	SOILS						
134SV4009	0.0 0.0	05/18/88	U 238	W	<	12.0	
- 0.0 -	0.0		RA 226	W		1.5	0.6
POND WATER			TH 232	W		2.0	1.0
			TH 230	D		1.1	0.3
	SOILS						
134SV4009	0.0 0.0	05/18/88	U 238	W	<	12.0	
- 0.0 -	0.0		RA 226	W		1.2	0.6
DUPLICATE			TH 232	W		3.0	1.0
			TH 230	-	<	0.0	
134SV4010	0.0 0.5	05/18/88	U 238	W	<	7.0	
- 0.0 -	0.0		RA 226	W		4.0	1.0
MIDCOAST/EXC			TH 232	W		2.0	1.0
			TH 230	D		1.2	0.4
134SV4011	0.0 0.0	05/18/88	U 238	W	<	9.0	
- 0.0 -	0.0		RA 226	W		3.0	1.0
BTM OF ESC			TH 232	W		2.0	1.0
			TH 230	D		1.2	0.8
134SV4012	0.0 0.0	05/18/88	U 238	W	<	12.0	
- 0.0 -	0.0		RA 226	W		1.3	0.7
DRUM MATL			TH 232	W	<	1.0	
			TH 230	D	<	0.7	
134SV4013	0.0 0.0	05/18/88	U 238	W	<	6.0	
- 0.0 -	0.0		RA 226	W		2.0	1.0
DRUM EXT			TH 232	W	<	1.0	
			TH 230	D		1.4	0.4
134SV4017	0.0 0.5	05/18/88	U 238	W	<	11.0	
- 0.0 -	0.0		RA 226	W		1.5	0.7
DRUM			TH 232	W	<	1.0	
			TH 230	D		1.3	0.9

☐ REPORTED VIA TELEPHONE

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PHONE (505) 345-3461

APPROVED BY Kathy Burnham for Rod Melgard DATE 06-02-1988

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ENCLOSURE 2
MIDCOAST AVIATION FLUID SAMPLE RESULTS

Sample ID	Type	Gross Alpha	Concentration (pCi/l)							
			Ra-226	Ra-228	Th-230	Th-228	Th-232	U-234	U-235	U-238
134-SV-4016	Form Oil From Drum	69 ± 24	<4.0	<160a,b	41 ± 9	51 ± 10	51 ± 10	68 ± 18	6 ± 5	61 ± 16
134-SV-4014	Brown Fluid From Drum	130 ± 40	<2.0	< 80a	9 ± 8	17 ± 8	17 ± 8	11 ± 4	<7.0	13 ± 4
134-SV-4015	Red Fluid From Drum	19 ± 10	<2.0	< 64a	<7.0	<7.0	<7.0	<2	<0.6	<3
134-SV-4018	Water From Exc. Pit	4 ± 2	0.4 ± 0.1	< 4	<0.2	<0.2	<0.2	1.5 ± 0.3	<0.6	1.5 ± 0.3
134-SV-4019	Water From Culvert	24 ± 4	0.4 ± 0.1	< 4	<0.1	<0.3	<0.1	0.7 ± 0.2	<0.1	0.3 ± 0.1

a- High minimum detectable activities are the result of difficulty in digesting the samples. Sample is currently being reanalyzed. b - available Au liquid associated with Sample No. 134-SV-4016 was collected and expended during the initial analyses. Thus, re-analyses are not possible.

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ENCLOSURE 2 (CONTINUED)

MIDCOAST AVIATION

SOIL SAMPLE RESULTS

Sample ID	Type (Depth)	Concentrations (pCi/g) U-238	Ra-226	Th-232	Th-230
134-SU-4009	Soil (0-6")	<12	1.2 ± 0.6	3 ± 1	1.1 ± 0.3
134-SU-4010	Soil (0-6")	< 7	4 ± 1	2 ± 1	1.2 ± 0.4
134-SU-4011	Soil (0-6")	< 9	3 ± 1	2 ± 1	1.2 ± 0.8
134-SU-4012	Soil (0-6")	<12	1.3 ± 0.7	<1.0	<0.7
134-SU-4013	Soil (0-6")	< 6	2 ± 1	<1.0	1.4 ± 0.4
134-SU-4017	Soil (0-6")	<11	1.5 ± 0.7	<1.0	1.3 ± 0.9

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